

ABSTRACT

A method for constructing a metal wire with embedded filaments or cavities therein for biomedical applications. The method includes first drilling nonconcentric apertures in a symmetrical pattern in a metal rod and then embedding filaments in the apertures. The metal rod is then drawn and thermally-treated to form a metal wire with embedded filaments therein. The filaments may advantageously provide fatigue resistance, radiopacity, and electrical conductance to the metal wire. The method optionally provides an additional step for withdrawing or removing the filaments using various methods to create cavities for cavity access within the metal wire. The metal wire may be finished to provide access to the cavities or filaments embedded therein. The cavities may then be filled with a therapeutic drug for elution inside the human body or used for passage of body fluids. An optional biocompatible coating may be disposed around the metal wire to prevent escape of the therapeutic drug before insertion into the human body. The cavities may also be filled with different materials as compared to the original filaments.